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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,746

03/28/2006

Koen J. G. Holtman

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

GIARDINO JR, MARK A

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/573,746	Applicant(s) HOLTMAN, KOEN J. G.	
	Examiner Mark A. Giardino	Art Unit 2400 4113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/28/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/28/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

Claim Objections

Claims 19-22 are objected to because of the following informalities: possible missing word in Claim 19. The phrase "said data excludes consideration of currently stored in the cache memory" has been construed as "said data excludes consideration of currently stored data in the cache memory".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 14, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki et al (US 6,009,231).

Regarding Claim 1, Aoki teaches a playback apparatus in a reproducing system which includes a plurality of play modes, comprising:

A cache memory configured to store data to be read from a data source (Ring Buffer 4);

A cache replacement unit configured to identify certain of said stored data to be deleted from the cache memory based on a determination of said stored data's present and/or future use in at least two play modes from among said plurality of play modes (Control Unit 8, see Column 7 Lines 1-4, writing to a circular buffer necessarily deletes

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some data already present in the buffer, also see Column 4 Lines 55-64 for description of play modes); and

A presentation unit configured to retrieve data from the cache memory to be presented to the user (Display 7).

Regarding Claim 2, Aoki teaches all limitations of Claim 1, further comprising a disc control unit (Control Means 8) configured to identify and retrieve said data to be read from said data source (Column 7 Lines 1-3), wherein said identification excludes consideration of currently stored data in the cache memory (data is loaded into the buffer sequentially in order or sequentially in reverse-order, and there is no consideration of what is currently in the buffer – only what is currently being played, see Figures 14 and accompanying description on Column 11 Lines 21-37, also Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8).

Regarding Claim 3, Aoki teaches all limitations of Claim 2, wherein said identified and retrieved data is data suitable for present and/or future use in at least two of said plurality of play modes (Column 10 Lines 23-29).

Regarding Claim 14, Aoki teaches a playback apparatus in a reproducing system which includes a plurality of play modes, the apparatus comprising:

An access prediction unit, configured to predictively select data blocks to be read from a data source, wherein said selected data is usable in at least two play modes from among said plurality of play modes (such a unit must be present to load the data shown in Figures 14 and accompanying description on Column 11 Lines 21-37 and Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8)

A disc control unit configured to read said predictively selected data blocks from said data source (Control Unit 8, see Column 6 Lines 42-46);

A cache configured to store the predictively selected data blocks read from the data source (Ring Buffer 4); and

A presentation unit configured to request data blocks from the cache to be presented to a user (Display 7).

Regarding Claim 18, Aoki teaches a method for improving trick mode performance in a playback apparatus in a reproducing system which includes a plurality of play modes, the method comprising the acts of:

Reading data from a data source (Column 6 Lines 30-32);

Storing said data in a cache memory (Column 6 Lines 34-36);

Identifying certain of said stored data to be deleted from the cache memory based on a determination of said stored data's present and/or future use in at least two play modes from among said plurality of play modes (Control Unit 8, see Column 7 Lines 1-4, writing to a circular buffer necessarily deletes some data, also see Column 4 Lines 55-64 for description of play modes); and

Retrieving data from the cache memory to be displayed (the segments are displayed on Display 7).

Regarding Claim 19, Aoki teaches all limitations of Claim 18, further comprising the acts of:

Identifying said data read from said data source, wherein said data excludes consideration of currently stored data in the cache memory (data is loaded into the

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buffer sequentially in order or sequentially in reverse-order, and there is no consideration of what is currently in the buffer – only what is currently being played, see Figures 14 and accompanying description on Column 11 Lines 21-37, also Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8);

Retrieving said identified data from said data source; and

Storing said retrieved data in said cache memory (Column 7 Lines 1-3).

Regarding Claim 20, Aoki teaches all limitations of Claim 19, wherein said identification act is based on said data's present and/or future use in at least two of said plurality of play modes (Column 10 Lines 23-29).

Claims 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunt et al (US 6,128,712).

Regarding Claim 9, Hunt teaches a playback apparatus in a reproducing system which includes a plurality of play modes (both audio and visual modes, see Audio Output Device 315 and Display Device 310), comprising:

A cache memory configured to store data read from a data source, said data being comprised of a plurality of data blocks (RAM 305, inherently comprised of data blocks);

A disc control unit configured to identify certain of said plurality of data blocks to be read from the data source, said identification based on the current contents of the cache memory (such a unit must be present for the Control Flow Diagram of Figures 8A and 8B, note how the unit checks to before loading to see if the segment is already

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loaded into the buffer in step 845, thus identification of the blocks to be read is based on the current contents of the cache memory);

A cache replacement unit configured to identify certain of said data blocks to be deleted from the cache memory (such a unit must be present for the Control Flow Diagram of Figures 8A and 8B, note replacement steps 870 and 875); and

A presentation unit configured to obtain data from the cache memory to be displayed (Audio Output Device 315 and Display Device 310).

Regarding Claim 10, Hunt teaches all limitations of Claim 9, wherein said certain of said plurality of data blocks to be read from the data source under control of the disc control unit are candidate data blocks applicable for use in at least two of said plurality of data modes (see example data blocks S1, S2, S3, and S4 to be loaded into the memory on Figure 2, all of which are applicable for use in both data modes mentioned above).

Regarding Claim 11, Hunt teaches all limitations of Claim 10, wherein said identification of said candidate data blocks is performed via a dynamic prioritization control mechanism (see Column 3 Lines 33-36, Column 3 Lines 61-63, and Column 26 Lines 32-47).

Regarding Claim 12, Hunt teaches all limitations of Claim 11, wherein said dynamic prioritization control mechanism is configured to identify at least two candidate data blocks not currently present in said cache memory, assign a desirability figure to the at least two candidate data blocks (Column 3 Lines 33-36); and select a candidate

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data block from among the at least two candidate data blocks having the highest assigned desirability figure (Column 3 Lines 61-63).

Regarding Claim 13, Hunt teaches all limitations of Claim 12, wherein the assigned desirability figure is based on criteria including at least a relative importance of the at least two play modes that the at least two data blocks may be used in (see Column 3 Lines 44-59, since audio files tend to be smaller than video files, and since size of the resources required is stated, relative importance of the at least two play modes exists as a criterion) and a distance between the at least two candidate data blocks to a current playback position (Column 6 Lines 6-8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-8, 15-17, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki in view of Hunt et al (US 6,128,712).

Regarding Claim 4, all limitations of Claim 3 have been discussed above. However, Aoki does not teach selecting which data to be replaced in the cache based on a desirability figure. However, Hunt teaches a device where data identification is performed via a dynamic prioritization control mechanism that identifies at least two candidate data blocks not currently present in said cache memory, assigns a desirability

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figure to the at least two identified candidate data blocks; and selects one of the at least two candidate data blocks having the highest assigned desirability figure (Column 3 Lines 33-36 and Column 3 Lines 61-63 in Hunt). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains to have used desirability figures as described by Hunt in the device by Aoki. As motivation, adding priority figures to the segments allows for greater flexibility, in that it allows not only segments of those coming before and after the current segment sequentially to be loaded as the Aoki reference teaches, but also for segments far in advance or far before the current segment, such as when seeking forward to different songs in an audio device. Thus, by combining the two devices, additional benefits are obtained.

Regarding Claim 5, the combined device meets all limitations of Claim 4, wherein the assigned desirability figure is based on criteria including at least a relative importance metric of the at least two play modes that the at least two candidate blocks may be used in (see Figure 14 and accompanying description on Column 11 Lines 21-37 and also Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8 in Aoki, where blocks from a preceding segment are more likely to be placed in the cache when the device is in still mode rather than regular mode) and a distance between the at least two candidate data blocks to a current playback position (it is clear from Figures 14-16 that position is used as a criterion, since only blocks immediately preceding and following the current playback position are loaded).

Regarding Claim 6, the combined device meets all limitations of Claim 1, further comprising a disc control unit (Control Circuit 8) configured to predictively select data stored on the data source based on a heuristic algorithm, (an algorithm that attempts to guess which data will be used next will not be optimal and thus is heuristic, see Column 3 Lines 36-39 in Hunt) said predictively selected data excluding data presently stored in said cache memory (data is loaded into the buffer sequentially in order or sequentially in reverse-order, and there is no consideration of what is currently in the buffer – only what is currently being played, see Figures 14 and accompanying description on Column 11 Lines 21-37, also Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8).

Regarding Claim 7, the combined device meets all limitations of Claim 6, wherein the heuristic algorithm selects said data from the data source by predicting the likelihood that said data will be requested from the cache memory at a future time (Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8 in Aoki, where blocks from a preceding segment are more likely to be placed in the cache when the device is in still mode rather than regular mode, thus predicting the likelihood that a certain segment will be used), assigning a prediction score based on said prediction, and selecting data from the data source having the highest prediction scores (Column 3 Lines 33-36 and Column 3 Lines 61-63 in Hunt).

Regarding Claim 8, the combined device meets all limitations of Claim 7, wherein the heuristic algorithm considers criteria including at least a knowledge of the current play mode (see Figure 14 and accompanying description on Column 11 Lines 21-37

and also Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8 in Aoki, where blocks from a preceding segment are more likely to be placed in the cache when the device is in still mode rather than regular mode), a current playback position, a knowledge of data access patterns in each of said plurality of modes (it is clear from Figures 14-16 that position is used as a criterion, since only blocks immediately preceding and following the current playback position are loaded and which blocks are loaded depends on the current mode), a probability that a current mode will be maintained and a probability that a mode different than the current play mode will be selected (see Figure 15, which is the device in still mode, but loads other segments in case a reverse or forward mode is selected, since it is likely a user will change from still mode).

Regarding Claim 15, the combined device teaches all limitations of Claim 14, wherein said access prediction unit predictively selects fragments in accordance with a heuristic algorithm (an algorithm that attempts to guess which data will be used next will not be optimal and thus is heuristic, see Column 3 Lines 36-39 in Hunt).

Regarding Claim 16, the combined device teaches all limitations of Claim 15, wherein said heuristic algorithm predicts the likelihood that data blocks to be read from the data source will be retrieved from the cache memory in the future and selecting the data blocks having the highest likelihood to be retrieved (Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8 in Aoki, where blocks from a preceding segment are more likely to be placed in the cache when the device is in still

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mode rather than regular mode, thus placing the segments most likely to be used in the buffer).

Regarding Claim 17, the combined device teaches all limitations of Claim 16, further comprising a cache replacement unit configured to identify certain of said data blocks to be deleted from the cache memory (Control Unit 8, see Column 7 Lines 1-4 in Aoki, writing data to the buffer will overwrite and thus delete data).

Regarding Claim 21, the combined device meets all limitations of Claim 20, wherein said data identification is performed via a dynamic prioritization control mechanism comprising the acts of:

Identifying at least two candidate data blocks not currently present in said cache memory;

Assigning a desirability figure to the at least two identified candidate data blocks;
and

Selecting one of the at least two candidate data blocks having the highest assigned desirability figure (Column 3 Lines 33-36 and Column 3 Lines 61-63 in Hunt).

Regarding Claim 22, the combined device meets all limitations of Claim 20, wherein the assigned desirability figure is based on criteria including at least a relative importance metric of the at least two play modes that the at least two candidate data blocks may be used in (see Figure 14 and accompanying description on Column 11 Lines 21-37 and also Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8 in Aoki, where blocks from a preceding segment are more likely to be placed in the cache when the device is in still mode rather than regular mode) and a

distance between the at least two candidate data blocks to a current playback position (it is clear from Figures 14-16 that position is used as a criterion, since only blocks immediately preceding and following the current playback position are loaded).

Regarding Claim 23, the combined device meets all limitations of Claim 18, further comprising the act of predictively selecting said data stored on the data source based on a heuristic algorithm (an algorithm that attempts to guess which data will be used next will not be optimal and thus is heuristic, see Column 3 Lines 36-39 in Hunt).

Regarding Claim 24, the combined device meets all limitations of Claim 23, wherein the heuristic algorithm predictively selects said data from the data source in accordance with the following acts:

Predicting the likelihood that said data will be requested from the cache memory at a future time (Figure 15 and accompanying description on Column 11 Line 61 to Column 12 Line 8 in Aoki, where blocks from a preceding segment are more likely to be placed in the cache when the device is in still mode rather than regular mode, thus predicting the likelihood that a certain segment will be used);

Assigning a prediction score based on said prediction; and

Selecting data from the data source having the highest prediction scores (Column 3 Lines 33-36 and Column 3 Lines 61-63 in Hunt).

Regarding Claim 25, the combined device meets all limitations of Claim 24, wherein the heuristic algorithm considers criteria including at least a knowledge of the current play mode (see Figure 14 and accompanying description on Column 11 Lines 21-37 and also Figure 15 and accompanying description on Column 11 Line 61 to

Column 12 Line 8, where blocks from a preceding segment are more likely to be placed in the cache when the device is in still mode rather than regular mode), a current fragment position, a knowledge of fragment access patterns in each of said plurality of modes (it is clear from Figures 14-16 that position is used as a criterion, since only blocks immediately preceding and following the current playback position are loaded and which blocks are loaded depends on the current mode), a probability that a current mode will be maintained and a probability that a mode different than the current play mode will be selected (see Figure 15, which is the device in still mode, but loads other segments in case a reverse or forward mode is selected, since it is likely a user will change from still mode).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Silberschatz et al teach a way of assigning desirability to blocks currently in a cache for purposes of selecting which entries to remove.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark A. Giardino whose telephone number is (571) 270-3565. The examiner can normally be reached on M-R 7:30 - 5:00. The examiner can also be reached on alternate Fridays.

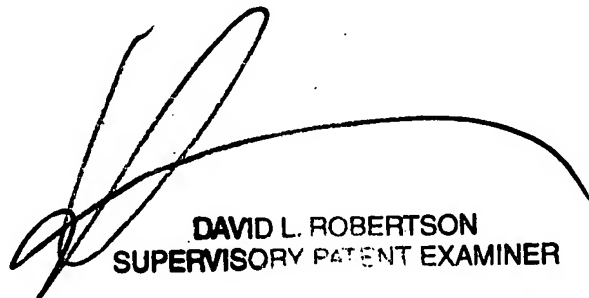
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Robertson can be reached at (571) 272-4186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M.A. Giardino



9/19/2007



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